

**REMARKS**

Claims 1-29, 33-35, 38-41, 44-47 and 50-53 are pending in the application.

Claims 1-29, 33-35, 38-41, 44-47 and 50-53 have been rejected.

Claims 25 and 53 have been objected to.

Claims 1-7, 11, 12, 14, 16, 19, 21, 24-29, 33-35, 39-41, 44-47 and 51-53 have been amended. These claims have been amended, in general, to provide clarity or to correct certain informalities. Applicants submit that, unless an amendment is specifically discussed below with respect to overcoming a prior art-based rejection, that these amendments do not otherwise narrow the scope of the claim limitations.

**Claim Objections**

Claims 25 and 53 were objected to due to certain informalities. Applicants have amended the indicated claims to correct the informalities raised.

**Rejection of Claims under 35 U.S.C. § 102**

Claims 1-29, 33-35, 38-41, 44-47, and 50-53 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over an article authorized by Pasi et al. ("Pasi"). Applicants respectfully traverse this rejection.

The Office Action relies on Pasi in rejecting each of the listed claims. While not conceding that Pasi is prior art, but instead to present the claims in condition for allowance, Applicants have chosen to overcome the Examiner's rejection by amendments that more clearly distinguish the claims over Pasi. Applicants' amendments are made

without prejudice to Applicants' right to establish, for example in a continuing application, that Pasi is not prior to an invention now or hereafter claimed.

**Independent Claims 1, 6, 11, 16, and 21:** Applicants respectfully submit that Pasi does not disclose each limitation of independent Claims 1, 6, 11, 16, and 21, as amended, and therefore Pasi cannot anticipate those claims or any claims that depend therefrom. In the below discussion, Applicants further respond to the positions expressed in the Office Action.

Claims 1, 6, 11, 16, and 21 have each been amended to include a limitation of the form:

associating an object with a chosen class, wherein the chosen class is one of the upper-level class and the lower-level class, and the chosen class is chosen such that, for the object, every attribute assigned to the chosen class has a non-null value used to describe the object.

*See, e.g.*, Claim 1. This amended limitation is presented, at least in part, to address discussion in the Final Office Action indicating that the previously amended claim limitation ("choosing a class with which to associate an object, wherein the class is chosen in such that every attribute associated with the class has a non-null value used to describe the object") was "disconnected from the rest of the claim." *See* Final Office Action, p. 20. Applicants respectfully submit that the "chosen class" provided in the amended claim language is clearly linked with the upper-level and the lower-level classes presented in other claim limitations of the independent claims. Applicants have provided clarifying language that establishes that the claimed "object" being associated with the chosen class is a member of the plurality of "objects" being arranged by the respective independent claims. Applicants further respectfully submit that Pasi provides no

disclosure of associating an object with a chosen class such that every attribute associated with the chosen class has a non-null value used to describe the object.

The claimed invention prevents an object from being associated with null attributes (e.g., resulting from a child class having associated attributes that are unnecessary or undesirable in describing an object at that child level) through the claim language: “associating an object of the plurality of objects with a chosen class, wherein ... the chosen class is chosen such that, for the object, every attribute assigned to the chosen class has a non-null value used to describe the object.” (emphasis added). As described in the Specification, this results in an advantage of less memory space being consumed by objects in a child class. In order to achieve this result, a criteria for choosing a class with which to associate with an object is that the class have a sufficient number and type of attributes such that every attribute associated with the class will have a non-null value describing the object. That is, the chosen class has no more associated attributes that are necessary to describe the object.

The Final Office Action suggests that “each of the classes defined in the claims (e.g., ‘upper-level class’ and ‘lower-level class’) contains only one attribute (e.g., ‘the first attribute’ or ‘the second attribute’), therefore, the claimed ‘every attribute associated with the class’ comprises only one attribute.” *Final Office Action*, p. 19. The Final Office Action continues on to support the rejection for the independent claims by indicating that the claims “do not reflect what Applicants consider as their invention” because the claim limitations require only one attribute for each class. *See Final Office Action*, p. 20. Applicants respectfully submit that the rationale in the Final Office Action reflects an

incomplete reading of the independent claims, and is, moreover, contrary to established Federal Circuit law related to claim construction tenets.

The language referenced by the Final Office Action in the above quote is found in, for example, the following limitations of Claim 1:

- assigning a first attribute to the upper-level class, wherein the first attribute describes each object associated with the upper-level class;
- inheriting of the first attribute by the lower-level class...;
- assigning a second attribute to the lower-level class, wherein the second attribute described each object associated with a lower-level class.

The Final Office Action appears to be construing the claim language to require that the upper-level class and the lower-level class have only one assigned attribute. However, the claim language presented above is clearly contrary to such an interpretation. The bullet-point limitations provide that the lower-level class has at least two attributes: (1) the first attribute inherited from the upper-level class and (2) the second attribute assigned to the lower-level class. In addition, Applicants respectfully submit that claim language of the form “assigning a first attribute to the upper-level class” does not limit the number of attributes being assigned to the upper-level class. Such language, while requiring at least a first attribute be assigned to the upper-level class, does not preclude additional attributes being assigned to the upper-level class.

The argument presented in the Final Office Action suggests that use of the indefinite article “a” in claims limits the number of attributes that may be assigned to a class to one and only one. Applicants respectfully submit that such a position is contrary to established law. The Court of Appeals for the Federal Circuit has repeatedly indicated that use of the indefinite article “a”, along with the transitional phrase “comprising,” does

not limit the number of objects associated with the indefinite article to one and only one, but instead should be construed as “one or more” unless there is clear evidence provided in the application to the contrary (which there is not). *See, e.g., Scanner Technologies Corp. v. Icos Vision Systems Corp.*, 365 F.3d 1299 (Fed. Cir. 2004)(“The use of the transitional phrase ‘comprising’ itself indicates that the elements or steps following the transition may be supplemented by additional elements or steps and still fall within the scope of the claim. Indeed, it is the very use of the transition ‘comprising’ in conjunction with the article ‘a’ or ‘an’ that creates the presumption that the article is construed to mean one or more elements or steps, unless there is evidence of a clear intent to limit the claims.”)(citations omitted). The indicated claims have no “clear intent to limit” the number of attributes assigned to a class to one and only one, as discussed above. For at least these reasons, Applicants respectfully submit that the chosen claim language found in the independent claims properly reflects what the Applicants consider as their invention in that the claimed upper-level class and lower-level class can have one or more associated attributes.

Pasi does not recognize the problem or solution of the present invention. The claims provide for an object to be assigned to a chosen class wherein the class is chosen on the basis of having no non-null values for attributes describing the object. As disclosed, Pasi does not perform associating an object with a chosen class such that each attribute of the chosen class describing the object will have a non-null value. Instead, Pasi discloses placing objects in classes without regard to whether attributes have null values. Only after associating an object with a class, if an attribute has a null or an

imprecise value, does Pasi disclose generating non-null or more precise values using fuzzy-set based inheritance relationships to fill those null values.

[A] method to compute default values for unknown objects' attributes is proposed, based both on the association of typical values with the attributes in the intentional definition of a class and on the application of a prioritized aggregation operator to combine typical values appearing in an inheritance structure."

*See, e.g., Pasi, p. 556. (Abstract)*

This method makes it possible to address two distinct cases of incompleteness of the value of an objects' attribute.

(1) The value of the object's attribute is unknown. In this case, the proposed method allows one to compute a default value for it.

(2) The value of an objects' attribute is imprecisely known and it is specified by means of a possibility distribution. In this case, the typical value stored at the class level can be used to refine the knowledge about the imperfect attribute value.

Pasi, p. 557 (column 1); *see also* Pasi, p. 562 (column 1). Applicants respectfully submit that such calculation of default or refined values for attributes that would otherwise be null does not provide disclosure of choosing a class on the basis of it having no non-null values to describe the object. Even were Pasi to construed to describe inheritance of non-null values, Pasi fails to describe a situation in which all there is to inherit is a null value (i.e., no default exists). For instance, the example described at Pasi, p.562 (column 1) provides no disclosure for how a person with no hair is taken into account. Such state would result in a null value entry or an erroneous default / refined value. Further, should an attribute be supplied with a value that is not used, or is otherwise meaningless, then that is merely wasteful of memory, and is contrary to the stated purpose of the present invention.

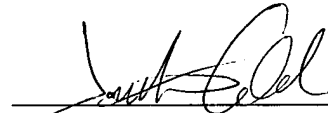
Further, Applicants respectfully submit that Pasi teaches away from the claimed invention by allowing inheritance of null values and subsequently filling those null values (Pasi) versus preventing inheritance of a null attribute value in the first place by selecting appropriate classes (the present invention).

Claims 1-6, 11, 16 and 21 include additional amendments designed to provide consistency with the above-quoted amended claim limitation, but which Applicants respectfully submit do not otherwise narrow the scope of the claims. For at least the above reasons, Applicants respectfully submit that Claims 1, 6, 11, 16 and 21, as amended, and all remaining claims dependent therefrom (Claims 2-5, 7-10, 12-15, 17-20, 22-29, 33-35, 38-41, 44-47, and 50-53) are in condition for allowance and request Examiner's reconsideration and withdrawal of the rejection and indication of same.

CONCLUSION

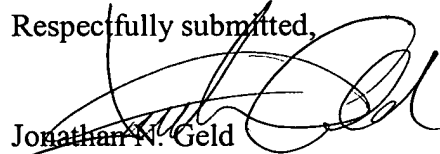
In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5090.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, COMMISSIONER FOR PATENTS, P. O. Box 1450, Alexandria, VA 22313-1450, on May 2, 2006.

  
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5/2/2006  
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